

MULTI-LAYER DIFFERENTIAL PHASE SHIFT KEYING WITH BIT-INTERLEAVED CODED MODULATION AND OFDM

ABSTRACT

An efficient system and method for modulation and demodulation to achieve a high data rate using Bit-Interleaved Coded Modulation and OFDM uses either a coherent or a non-coherent transmission scheme using differential modulation. In order to maintain a high data rate impervious to sudden phase changes, a communication system uses an efficient constellation having multiple rings with different sizes and modulation/demodulation schemes utilizing this constellation. In power line communications, the channel gain information is obtained easily at a receiver (100) while the phase information is not. Thus, the communication system uses an absolute magnitude and differential phase coding for modulation and demodulation of the signals.